Funding of development projects by Learning and Teaching Support Network - Centre for Information and Computer Sciences

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Abstract
The Learning and Teaching Support Network was established at the beginning of the year 2000 by the higher education funding bodies. It is intended to provide an integrated network of subject centres to enhance learning and teaching activity in UK higher education. The subject centre responsible for Information and Computer Sciences is responsible for promoting quality information, resources and expertise in computing and library and information science. The LTSN - ICS is addressing its strategic aims by creating networks and establishing contacts within the discipline. The Centre has made available a development fund to support small academic projects in teaching and learning from both information and computer sciences. The successful projects are described here, as is the detailed refereeing process that was undertaken to determine the final destination for the development fund money.

Introduction

The Learning and Teaching Support Network (LTSN)[1] was established at the beginning of the year 2000 by the higher education funding bodies. Its aim is:

> "To provide, through a coherent and integrated network of subject specific and generic centres, high quality information, expertise, and resources on good and innovative learning and teaching practices, and to effectively promote and transfer such practices to enhance learning and teaching activity in UK higher education."

It was created after a review of the Computers in Teaching Initiative (CTI) and Teaching and Learning Technology Support Network (TLTSN)[2] which recommended that a subject-based support network with a broad focus across all learning and teaching activity would be best placed to engage academics. It is funded by the UK funding councils and supports the subject strand of the Teaching Quality Enhancement Fund[3] The LTSN comprises 24 subject centres, a Generic Centre and a programme executive/co-ordination unit. The Network is funded over an initial 5-year period.

The LTSN subject centre responsible for Information and Computer Sciences (LTSN-ICS)[4] is split across two sites. Computer Science is based at the University of Ulster and Library and Information Science is based at Loughborough University. It is

responsible for promoting quality information, resources and expertise in library and information science (LIS). Its aims closely reflect those of the LTSN nationally

Why a development fund?

The LTSN - ICS is addressing its strategic aims by creating networks and establishing contacts within the discipline to ensure that information disseminated to the community reaches as wide an audience as possible. Involving the LIS community at an early stage is imperative. The more academics involved the more of an impact that can be made, enabling advances and developments in learning and teaching. To this end the Centre decided to invest in a fund that would support small academic projects in teaching and learning from both information and computer sciences.

The activity of the LTSN - ICS is overseen by a steering group, which includes representatives from the British Computer Society, the Library Association, and also LIS departments including Sheffield and Aberystwyth. The Steering Group has overseen the setting up of the development fund and the refereeing process.

Objectives

The fund was created by the LTSN-ICS with the following objectives:

- Identify, promote and disseminate good practice.
- To increase participation by UK Higher Education Institutions.
- Increase involvement with the subject community.

These are in line with the Centre's strategic aims and should bring good practice within the disciplines to a wider audience.

In the first instance, funds to a value of £20,000 were allocated by the LTSN-ICS to support projects relating to learning, teaching and assessment in Information and Computer Sciences. It was agreed that projects would be funded to a maximum of £3,000. It was also agreed that the current scheme will run as a pilot for the academic year 2001/02 and if it is successful will be continued in subsequent years if funds are available.

Funding Allocation and Criteria

It was decided at the outset that funding would be allocated through a process of a competitive bidding for the amounts as specified above.

The criteria that projects were asked to meet to be considered for funding were as follows:

- Need established;
- Aims and objectives clearly specified ;

- UK Higher Education Institution or linked with a HEI ;
- Evidence of support from the institution (human and /or financial resources allocated);
- Equality and equity issues addressed;
- Value for money demonstrated;
- Methodology justified;
- Clear evaluation strategy;
- Student involvement where appropriate;
- Clear evidence of the expected contribution to Learning and Teaching in ICS.

Submission for funding was enabled via the web and the form to be completed allowed proposers of projects to address each of the above criteria in turn.

Launch and timeframe

The call for proposals was sent out to the community during August 2001. It was given pre-eminence at the LTSN-ICS conference held in August at the University of North London to further inform the subject community.

The call for submissions gave applicants, in the initial phase, a wide remit within which they could apply. Projects were asked to concentrate on:

- promotion and dissemination effective teaching;
- learning and assessment activities;
- good practice in the evaluation of teaching methods;
- raising the profile of pedagogic research;
- bringing into wider use exemplary techniques, methods or materials already developed and used successfully within departments.

Submissions had to be conveyed to the centre electronically using a downloadable form on the LTSN-ICS website by a closing date of 30th September. The centre received 30 submissions through this mechanism. Of these bids just 20% were from the LIS community.

All projects were then forwarded to referees, so those successful applicants could be notified by 31st October 2001. This fast turnaround was chosen to enable projects a start date of 1st December 2001 onwards and a possible completion date of 31st July 2002, although a number of projects did wish to run over a full year.

Refereeing the projects

A review panel consisting of LTSN-ICS Steering Group members or other nominated persons and LTSN-ICS staff was appointed to review applications. Each proposal was assessed against a set of criteria by at least two members of a review panel plus one member of LTSN-ICS staff.

The centre indicated to referees that the following areas were important to the centre when reviewing projects. It was made clear that projects should look at current learning and teaching in ICS at HE level including:

- Innovative approaches to learning and teaching as described by researchers and practitioners;
- Developments in computer-based learning and assessment;
- Open learning, distance learning, collaborative learning and independent learning approaches;
- The variety of contexts in which students in HE learn, including work-based learning, placements and study visits;
- Staff development;
- The integration of theory and practice.

Decisions on projects to be funded were made by a meeting of the Review Panel as a whole. The high quality of the 30 applications received gave the Panel a very difficult task. Despite having been marked by referees and rated using the above criteria and a scoring system a large number of the projects were on equal footings overall. This left the panel with devising a fair and judicial way to select the final number of projects that could receive funding.

The only way that seemed to suggest fairness across the board was to apply weighting to the criteria used by referees. Weightings were given to those areas that were important to the LTSN-ICS. These were decided as follows:

1. Benefit to the community;
2. Dissemination;
3. Rationale and evaluation;
4. Nature of the proposal;
5. Value for money.

Heavier weightings were given to those at the top of this list than at the bottom. It was felt that it was more important that the perceived benefit to the community took precedence over the others and that dissemination plans needed to be appropriate to reach the community effectively and also promote the LTSN-ICS.

By weighting the results of the referees' scores and combining this with the referees' comments a clear list emerged of favoured proposals. Surprisingly the list revealed wide coverage of the United Kingdom with institutions from Scotland, Wales and the length and breadth of England being offered funding. It also revealed a reasonable spread of pre and post 1992 universities. Of the 171 higher education institutions in the United Kingdom there are approximately 18 that teach LIS, yet the vast majority of them teach computer science. Despite this a fifth of the bids received were from LIS.
However, the number of successful bids from computing departments outweighed those from the LIS community.

Projects Awarded funding

The following descriptions have been provided by the nine projects that best matched the criteria mentioned previously and who have, subsequently been awarded funding.

Ian Allison, Nottingham Trent University: An idyllic approach to learning to program.

"With increasing numbers of computing students in the UK, the teaching of this core skill becomes more difficult as a higher proportion of students are choosing computing without a natural aptitude for programming. A new approach to teaching programming has been incorporated within a computer assisted learning tool, Idyll. Idyll has been developed to address the problems with learning Windows programming. The purpose of this project is twofold: to evaluate and enhance the tools, and to disseminate the lessons by developing a network of academics teaching programming."

Chris Beaumont, Edge Hill College of Higher Education: Identification of best practice in the use of Problem Based Learning in the teaching of Computing.

"Experience of using PBL within computing (networks) has raised many questions about the balance of resources provided to students, the timing of resource provision, the framing and scope of problems, the tutor role (facilitator vs. expert), assessment and managing the disjunction and anxiety experienced by students. While these are issues generic to PBL, the (professional) context of the subject discipline and knowledge base has a fundamental influence on the way PBL is implemented. Computing is a wide-ranging discipline, and it is not obvious that PBL is suitable for all topic areas. This research therefore aims to identify cases of the use of PBL in Computing, and identify best practice and pitfalls to avoid."

Roger Boyle, University of Leeds: The Value of "A" Level Computing.

This research will "examine the value to computing undergraduates of "A" level computing over the last decade." It "will track the evolution of the "A" level syllabus, and its relationship to the university syllabus and the state of the art with particular reference to the disciplinary characteristics suggested in Clark (2001)[5]. By consulting students, a new avenue of research into the value of the qualification in pursuing study at a particular university will be opened."

Elizabeth Burd, University of Durham: Forging Planned Inter-year Co-operation though a Peer-mentor System for Group Work Projects.

"Group work is a key skill of the IT industry and an excellent teaching and learning tool for HE. However, group work is often very lecturer intensive as ideally each group needs individual supervision. Furthermore, assessment of group activities is also a problem; identifying how individuals contribute by different extents and to adequately reflect this in the assessment still remains an issue. Individual weightings have in the past modified the average group grade by over 25%, however, our research indicates that over 60% of tutors are not confident in the accuracy of individual weightings. This research will investigate these issues by forging co-operation between year groups by using final year students studying project management to manage (through peer-mentoring) the groups. The final year students

whilst gaining invaluable project management experience will report back to the project co-ordinators the success or otherwise of their project management group work. It is hoped that the detailed knowledge gained of the group interaction by the final year students can be used to improve the accuracy of the individual weighting assessment process. This project will conduct an experimental trail to investigate the feasibility of the peer-mentor approach to group work projects."

Jon Dron, University of Brighton: Collaborative resource discovery and classification.

"This project is intended to utilise and promote the CoFIND (Collaborative Filter In N Dimensions) system within the UK academic computing community both as a distributable learning-support tool and as the basis of a national, collaboratively generated, self-organising computing resource database. Such a database would integrate and complement rather than seek to replace existing portals and collections of resources. CoFIND is a Web-based application which relies on learners to find and enter details of learning resources such as Web pages, books or films, then to provide metadata with which to classify and rate them. A combination of evolutionary and "stigmergic" (communication through changes to the environment) mechanisms act on the metadata provided by learners to maintain the structure of the CoFIND system in a self-organised state without a dominant controller or designer.
More information about CoFIND is available at
http://www.it.bton.ac.uk/staff/jd29/cofind.html."

Alastair Irons, Northumbria University: Using portfolios to assess learning outcomes in computing.

"The work brings together a number of separate but related issues. The work is principally centred on the use of portfolios to assess learning outcomes. However secondary issues are also tackled, including; work on creating appropriate learning outcomes for units, levels and courses, ensuring learning outcomes are actually assessed, managing "over-assessment", countering collusion and plagiarism through assessment design, motivating students, and incorporating computing benchmark statements into learning outcomes."

Robert Newton, Robert Gordon University: Evaluation of the critical success factors in implementing technology based teaching materials in higher education: human factors.

"The study will concentrate specifically on the evaluation and use of educational courseware that has been designed for delivering parts of the curriculum in higher education. While in the past evaluation of educational courseware has tended to be based solely on assessing the design of the teaching material itself or on the manner in which students interact with the material, more recently there has been a trend towards strategies for evaluation which give full consideration to the context in which learning materials are introduced. Given the low usage of externally produced learning materials, evidence that the dissemination of courseware material remains poor, and evidence that many packages are only used for a short period after their initial development, it seems particularly important to evaluate courseware in a

manner which takes account of all factors likely to impact on their successful implementation and sustained use as an integral part of the curriculum. The analysis of the data gathered will be used to produce a pragmatic set of guidelines for use by academic staff who wish to acquire and use educational courseware materials and the final report will focus primarily on a discussion of staff perceptions and attitudes to use of technology based teaching, which will provide information on the critical factors which mitigate for and against successful implementation of technology based teaching and learning initiatives."

Simon Stobart, University of Sunderland: SOLE - Sunderland Online Learning Environment.

"The project will create an on-line learning environment to support on and off campus students. SOLE will be a dynamic environment, tailored to individual students learning requirements. SOLE will include, student – student and student to staff communication through discussion forums, a private email system and on-line reflective diaries for students to maintain during their study. On-line assessment will be provided through multiple choice testing and directed feedback. Students will be provided with a graphical representation of their progress through the learning environments module sessions. Finally, and most importantly SOLE will include a student monitoring and tracking facility, which will record all student movements through the environment. This information will be provided to teaching staff in order for them to monitor and problems and to identify areas of module material which students are having difficulty."

Su White, University of Southampton: ICS Question Bash.

"The potential benefits of regular testing to reinforce learning and provide feedback to learners is well documented (e.g. Ramsden, Gibbs). One possible intervention is to introduce regular formative testing via the use of Computer Assisted Assessment. Informal discussions within the community recently have indicated that colleagues would welcome and find benefit in the consolidation and sharing of existing test banks, although issues such as the variety of formats in which questions are current stored, and a lack of time to address the interoperability issues is recognized as a barrier to such consolidation. This project proposal directly addresses the interoperability issue and makes use of existing activity and resources developed by the Electrical and Electronic Assessment Network (e3an), a project supported by the Fund for the Development of Teaching and Learning. Further details can be found at http://www.e3an.ac.uk/. The project will use the device of a “Question Bash” to enable interested academics to work together and create sets of interoperable questions across a range of question types for use across the wider ICS community. Resulting testbanks will be available for download to registered users across UK Higher Education. IPR for the resulting testbanks will make the questions freely available for legitimate academic use in the UK Higher Education Community."

One of the overriding factors, which led to these nine being selected, was that they were perceived to have the potential to benefit teaching and learning in both information and computer science. It can, for example, be clearly seen that the project on problem based learning at Edge Hill will determine some examples of good practice that others can emulate and just as importantly warn others about the pitfalls

to avoid. The "question bash" being piloted at the University of Southampton may provide questions in the first instance for computing subjects, but the infrastructure and lessons learnt can be used to provide similar materials for LIS. Looking at the projects with a view to furthering teaching by academics in some measurable way was uppermost in the minds of the Review Panel when refereeing bids.

It was also interesting to see how many bids by LIS departments involved information technology (IT), as can be exemplified by the successful bids from the University of Brighton and Robert Gordon University. The LTSN-ICS name might be inducing academics to think that we are only interested in IT. There is certainly a perception that we are following in the footsteps of the CTI, but our remit is broader as exemplified by University of Durham's project on group work.

The next year

Projects will sign contracts that detail the level of funding, the schedule of work, and reporting intervals. All projects will be required to produce a mid-year and a final report for the LTSN-ICS. These will be made available via the LTSN-ICS website and may appear elsewhere in the public domain, through journal articles, conference papers or other dissemination vehicles.

Projects will be working closely with the centre to ensure that they keep to their proposed schedule. The centre will also be trying to ensure that the projects receive as much exposure as we can give them via our activities.

Other projects, though unsuccessful, are receiving feedback as to why funding has not been allocated on this occasion. They are also being invited to discuss, with the LTSN-ICS, alternative ways in which we may be able to aid them.

This is the first time that the LTSN-ICS has used a development fund as a means of encouraging good practice in learning and teaching within our disciplines. Hopefully it will be a very fruitful exercise that will lead to further projects being funded in future years.

References

1. Learning and Teaching Support Network. (2001) *About the learning and teaching support network.* http://www.ltsn.ac.uk/

2. Higher Education Funding Council for England. (September 1998) *Report 98/47: An evaluation of the Computers in Teaching Initiative and Teaching and Learning Technology Support Network.* http://www.hefce.ac.uk/Pubs/HEFCE/1998/98_47.htm

3. Teaching Quality Enhancement Fund National Co-ordination Team. (2000) *About us.* http://www.ncteam.ac.uk/

4. Learning and Teaching Support Network - Centre for Information and Computer Sciences. (2000) *LTSN-ICS HomePage.* http://www.ics.ltsn.ac.uk/

5. Clark M. (2001) Computer Science: a hard-applied discipline? [Unpublished - submitted to *Teaching in Higher Education.* URL: http://www.leeds.ac.uk/sce/martyn/the.pdf].